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DP5-1972

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24 June 1958

CMCC Doc. 151X5.1157

Copy / of 2

Page 1 of 1

Dear Dick:

We are forwarding herewith Progress Letter Number 19 covering work performed in connection with System No. 4 during the period extending from 1 May 1958 to 1 June 1958.

Sincerely,

*Burt*

Burt

BFM

bqm

Enclosures:

CMCC Doc. 163X5.81

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Progress Letter No. 19

Contract No. A-101

System 4

1 May 1958 to 1 June 1958

CMCC Document No. 163X5.81

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19 June 1958

(This document contains a total of 4 sheets,  
including this title sheet.)

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1. General

During the period covered by this progress letter, the following work was performed:

- (1) All environmental testing was completed on system Serial 104 and this system was released for flight testing.
- (2) Environmental testing of units for system Serial 105 was advanced.
- (3) Construction of Serial 102 of the System Test Set was completed and laboratory testing of modules and units was initiated.

2. Serial 104

a. During this report period system Serial 104 was subjected to system environmental tests. The equipment was operated for a total of 62 hours, including 27 hours at altitudes of 45,000 feet or above. No major failures or difficulties occurred in these tests, although some deficiencies in performance were observed. These may be summarized as follows:

- (1) Band 1 Receiver - Variations in sensitivity across the band were observed in environmental tests. Generation of spurious frequencies occurred and cross-talk between Bands 1A and 1B was evident.
- (2) Band 2 Receiver - A maximum variation in sensitivity of  $\pm 6$  db was observed during these tests. This is believed due to the low heater voltage on the Band 2 r-f preamplifier.
- (3) Band 3 Receiver - A decrease in sensitivity of up to 10 db was noted under extremes of temperature rise.
- (4) Band 7 Receiver - A decrease in sensitivity occurred due to failure of a temperature compensator in the preselector mechanism.

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(5) Bands 8 and 10 Receivers - These receivers displayed threshold variations due to faulty transistors.

(6) Camera Equipment - Operation of the temporary model of the positive film-advance mechanism was unreliable during these tests.

b. After termination of the system environmental tests the units listed above were brought back to the laboratory for corrective measures before release to flight test. The defects in the Band 1 receiver were largely corrected, although some slight tendency still exists towards spurious responses and there is some variation in sensitivity. However, this is only noticeable toward the limits of the tuning ranges. No corrective action appeared necessary in the case of the Band 2 receiver since its defects did not appear due to the receiver itself. The cause of sensitivity variation in Band 3 was not resolved. The failures incurred by the Band 7 receiver were corrected and its sensitivity was improved to an acceptable value. Steps are being taken to provide a more permanent correction for the film advance mechanism in the camera equipment.

3. Serial 105

Laboratory tests and unit tests on system Serial 105 are in progress. Two of the receiving equipments have been subjected to environmental tests with satisfactory results.

4. System 4 Test Set

All construction on Serial 102 (the final model) of the System 4 Test Set has been completed. Laboratory and bench tests of the modules and units are now under way.

5. Planning

During the next reporting interval the following activities are scheduled:

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- (1) The flight test program on Serial 104 will be initiated and advanced.
- (2) Unit testing on Serial 105 will be essentially completed.
- (3) All testing on the final Test Set will be completed.

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